surface of the kidney. Histologically, the necrosis of an infarction is evident earliest at the periphery, because, owing to the better circulation of the lymph there, the nuclei are dissolved out quickly, and hence do not stain. For a number of days the infarction shows three zones at its periphery, from within outward. They are, first, a zone of cellular infiltration; second, a zone of hyperæmia; third, a zone of partial necrosis. The infiltraton of leucocytes at the periphery of an infarction is well marked in twenty-four hours.

It is chiefly of interest because it limits the collateral circulation, and finally stops it entirely. Beneath the capsule it takes place more slowly, probably because the circulation there is less active. The hyperæmic zone is due to congestion of the bloodvessels resulting from a collateral circulation under diminished blood pressure. The pale zone outside of it is only relatively anæmic. The circulation in it is fairly active; the pale color is due in part to partial necrosis of the tubules.

The Importance of Injuries of the Arteries in the Production of True Aneurisms and Arterio-sclerosis.—MALKOFF (*Ziegler's Beiträge*, 1899, xxv.) has succeeded in producing aneurisms experimentally. He employed two methods, either injuring the wall directly by compression or indirectly by locally increasing the intravascular pressure. In the compression experiments, which numbered twenty-eight, the femoral, brachial, and carotid arteries of the dog were selected. The arterial trunk was exposed and compressed with a pair of Péan's forceps. Excessive force was avoided, so that the continuity of the vessel-wall remained intact and no hemorrhage occurred. The skin incision was closed with sutures. The operations were performed under aseptic conditions, and the wounds healed without suppuration.

In two cases the second method was employed. The common carotid artery was subjected to a strong local distention by the injection of physiological salt solution. Temporary ligatures were first applied to the common carotid and superior thyroid arteries; a canula inserted into the former and a pressure of two atmospheres applied for fifteen seconds. The vessel became considerably distended.

The arteries were examined at varying lengths of time after the injury, ranging from four hours to a hundred days.

In the arteries injured by compression tears occurred in the intima, elastica interna, and media. A spindle-shaped or cylindrical aneurism developed; but after forty days the lumen was restored to normal size or even became abnormally small. This was brought about by arterio-sclerotic changes. The intima was markedly thickened and a newly developed elastic tissue plainly discernible in it. The elastic fibres developed themselves from the peripheral portion of the cells and formed a delicate network. A new formation of connective-tissue also occurred in the media. Similar but less marked changes were obtained by local distention of the vessels. Scattered areas of fatty degeneration were found, and even within twenty days after the injury a deposition of lime-salts.

[In these experiments of Malkoff the development of arterio-sclerosis began at once after dilatation of the vessel had taken place. This is in accord with Thoma's view that arterio-sclerosis is in a certain sense a compensation process and tends to prevent rather than cause the aneurismal formation. These experiments also confirm the recently published observations of Dmitrijeff, Jores, and others, who claim that a new formation of elastic tissue occurs in arterio-sclerosis.—ED.]

On the Morphology of Intravascular Coagulation and Thrombus Formation.—ARNOLD (*Virchow's Archiv*, 1899, Band clv.) thinks his observations show conclusively that the blood-platelets are formed from the red blood-corpuscles, and that certain degenerative changes in the red blood-corpuscles stand in close relation to fibrin formation and blood coagulation.

These changes are of three kinds: (1) Erythrocytolysis, a simple diminution in size leading to the formation of microcytes and finally complete disappearance. This process of solution can be demonstrated by staining with methyl violet. The red corpuscles appear surrounded by a zone which agrees in its staining reaction with their contents. He designates as (2) erythrocytorrhexis, the extrusion of round, refractive granules—A. F. Müller's "blood dust," and the nipping off (Abschnürung) of particles of varying size. (3) Erythrocytoschisis is the breaking up of the red blood-corpuscles simultaneously or in rapid succession into disk-like bodies. Many of these fragmentation products are identical in structure with the blood platelets.

In extravascular coagulation Arnold always found the fragmentation more active than under other conditions—*e. g.*, a suspension in physiological salt solution.

In the mesenteric vessels of living animals he was able directly to observe the formation of blood-platelets by erythrocytorrhexis and erythrocytoschisis, thus definitely settling, he thinks, the question of their origin. In beginning coagulation the leucocytes were either absent or present only in small numbers. They showed no signs of degeneration even when the act of coagulation was completed.

He studied in rabbits the thrombosis produced by the injection of foreign bodies into the circulation, and also vital and agonal thrombi in man, and was able to demonstrate in each the formation of blood-platelets from red blood-corpuscles, and also the production by erthroctyolysis of microcytes and "shadow" corpuscles. Wlassow distinguishes two kinds of fibrin-threads: 1. The simple or homogeneous. 2. The complex or granular. Arnold suggests that the former arise by plasmolysis, the latter by fragmentation of the erythrocytes, platelets, and granules.

An Aneurism of the Temporal Artery.—MANZ (*Beiträge z. path. Anat. u. z. allg. Path.*, Band xxiv., Heft 3, S. 534) describes an unusually interesting case of traumatic aneurism of the temporal artery. The tumor, which in the course of two years had reached the size of a hazel-nut, upon histological examination presented an irregularly shaped cavity, the walls of which corresponded in a general way to the walls of the artery. The smooth muscle fibre of the tunica media was limited to about one-fifth of the wall of the sac, elsewhere the wall consisted of connective tissue and elastic fibres lined throughout with endothelium. The "inner coat" was everywhere thickened, in many places sending papillary projections of various sizes and shapes inward into the cavity, dividing it up into irregularly shaped canals. Orcein